

**DEFINING TOOTH-MOVING APPLIANCES COMPUTATIONALLY**

*gaw*  
*, filed August 26, 2002, now U.S. Patent No. 6,682,346*

**CROSS-REFERENCES TO RELATED APPLICATIONS**

*gaw*  
[0001] The present application is a continuation of U.S. Application No. 10/228,885,  
5 (Attorney Docket No. 18563-005010US - AT-00107.1US), which was a continuation of U.S.  
Application No. 09/169,034 (Attorney Docket No. 18563-005000US - AT-00107US), filed  
October 8, 1998, *now U.S. Patent No. 6,471,511*

[0002] This application is related to commonly-owned U.S. Application No. 09/686,190,  
(Attorney Docket No. 018563-004810US - AT-00105.1US), filed October 10, 2000, and  
10 U.S. Application No. 09/169036 (Attorney Docket No. 018563-004900US - AT-00106US),  
filed October 8, 1998, now U.S. Patent No. 6,450,807, the full disclosures of which are  
incorporated herein by reference. *Pending*

**BACKGROUND OF THE INVENTION**

[0003] The present invention relates to computational orthodontics.

15 [0004] In orthodontic treatment, a patient's teeth are moved from an initial to a final  
position using any of a variety of appliances. An appliance exerts force on the teeth by which  
one or more of them are moved or held in place, as appropriate to the stage of treatment.

**BRIEF SUMMARY OF THE INVENTION**

*gaw*  
20 [0005] The present invention provides methods and apparatus for defining appliance  
configurations at the steps of a process of repositioning teeth from an initial tooth  
arrangement to a final tooth arrangement. The invention can operate to define how  
repositioning is accomplished by a series of appliances or by a series of adjustments to  
appliances configured to reposition individual teeth incrementally. The invention can be  
applied advantageously to specify a series of appliances formed as polymeric shells having  
the tooth-receiving cavities, that is, shells of the kind described in the above-mentioned  
25 U.S. Application No. 09/169276, (Attorney Docket No. 018563-004800US - AT-00105US),  
filed October 8, 1998, *now abandoned.*

[0006] A patient's teeth are repositioned from an initial tooth arrangement to a final tooth  
arrangement by making a series of incremental position adjustments using appliances